

A) General Information



Acronym: DISCOSE
Title of the User-Project: DIStributed demand Control Operating through System Events

TA Call: 2st Call of Proposals, 30th September 2010
Host Research Infrastructure: D-NAP, University of Strathclyde

Starting Date: 24/10/2011
End Date: 31/03/2012

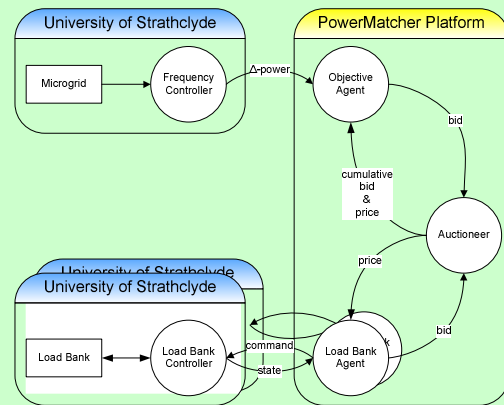
Lead User (Name-Institution-Country): Peter Heskes – TNO – Netherlands
Additional Users (Name-Institution-Country): Paul Booij – TNO – Netherlands
Pamela MacDougall – TNO – Netherlands

B) Summary of the User-Project

Future power systems will require the flexible control of demand as well as generation to allow the balancing of the power system. Agent based control of demand based on market conditions is one possible method of incorporating demand into the power system services market.

This project demonstrated the PowerMatcher demand side support software created by TNO, and evaluated it within a real-time power hardware-in-the-loop simulation system.

PowerMatcher controlled the load banks of the D-NAP facility to emulate demand side measures while the local network was run through a real-time simulation of the UK grid during a low frequency event.



Block diagram of the test facility configuration

C) Main Achievements

- PowerMatcher was shown to operate correctly within a realistic simulation of an emergency and pre-emergency system state.
- Communication systems between an external controller and the RT-PHIL platform were created and shown to be stable.

D) Dissemination of the Results

The results of the tests performed in the infrastructure will be disseminated in a journal and a conference article likely to be

- CIRED 2013 abstract accepted "Fast demand response in support of the active distribution network"
- IEEE Transactions on Power Deliver paper

This work has resulted in a jointly funded PhD by TNO, University of Strathclyde and ETP.

E) Use of the Resources

Access Days/Units (USTRATH): 7
Stay Days (USTRATH): 16